REMARKS

The specification has been amended to reflect the national stage status of this application.

In addition, the claims have been amended to remove the multiple dependencies in order to eliminate the improper multiple dependencies and to reduce the PTO filing fee.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached pages are captioned "**Version with markings t show changes made**".

Favorable action on the merits is solicited.

Respectfully submitted,

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CLAIMS

1. A glycyrrhizin preparation for transmucosal absorption, which comprises glycyrrhizin and an ester mixture of a C_{6-18} fatty acid glycerol ester with a C_{6-18} fatty acid macrogol ester.

2. The glycyrrhizin preparation for transmucosal absorption according to claim 1, wherein the C_{6-18} fatty acid is a saturated fatty acid.

(Amended)
3. The glycyrrhizin preparation for transmucosal absorption according to claim 1 ~~or 2~~, wherein the average molecular weight of the macrogol is 100 to 800.

4. The glycyrrhizin preparation for transmucosal absorption according to claim 1, wherein the ratio by weight of the glycyrrhizin to the ester mixture is 1:0.05-10.

(Amended)
5. The glycyrrhizin preparation for transmucosal absorption according to claim 1 ~~or 4~~, wherein the ratio by weight of the C_{6-18} fatty acid glycerol ester to the C_{6-18} fatty acid macrogol ester is 1:0.1-10.

(Amended)
6. The glycyrrhizin preparation for transmucosal absorption according to ~~any one of~~ claim~~s~~ 1 ~~to 5~~, which further comprises an organic acid, a chelating agent or a surfactant.

(Amended)
7. The glycyrrhizin preparation for transmucosal absorption according to ~~any one of~~ claim~~s~~ 1 ~~to 6~~, which is an oral preparation releasing the drug in the large intestine.

(Amended)
8. The glycyrrhizin preparation for transmucosal absorption according to ~~any one of~~ claim~~s~~ 1 ~~to 6~~, which is a rectal or vaginal suppository or a rectal or vaginal ointment.

DESCRIPTION

GLYCYRRHIZIN PREPARATIONS FOR TRANSMUCOSAL ABSORPTION

This application is a 371 of PCT/JP00/04714 filed July 13, 2000.

Technical Field

The present invention relates to a glycyrrhizin preparation with improvements in absorption via mucosae, in particular digestive mucosae.

Background Art

Glycyrrhizin is a major effective component of licorice, and is known to have many actions such as anti-allergic action, anti-inflammatory action, antiviral action and steroid-like action, and it is important as a medicine for treating chronic hepatic diseases. When glycyrrhizin is administered intravenously as an injection, the therapeutic action appears significantly. However, when it is orally administered, the therapeutic action is not clearly shown because of its poor absorption via digestive tracts.

Further, when glycyrrhizin is orally administered, it is hydrolyzed by enterobacteria present on the digestive mucosae to release its sugar moiety, and thus absorbed as glycyrrhetic acid, but the pharmaceutical activity of glycyrrhetic acid against hepatitis is considerably lower than that of glycyrrhizin.

To improve the bioavailability of glycyrrhizin, intra-rectal administration thereof in the form of suppositories has been proposed (JP-A 1-294619, JP-A 3-2122 and JP-A 3-123731).

For improving the absorption thereof via digestive tracts, an oral